EPA Region 7 TMDL Review

TMDL ID:	IA 04-LDM-03085-L	**Waterbody ID:**	IA 04-LDM-03085-L
Waterbody Name:	CEDAR LAKE		
Tributary:	CEDAR Creek		
Pollutant:	NITRATE		
State:	IA	**HUC:**	07100008
BASIN:	Des Moines River Basin		
Submittal Date:	3/17/2005		
Approved:	Yes		

Submittal Letter

State submittal letter indicates final TMDL(s) for specific pollutant(s)/water(s) were adopted by the state, and submitted to EPA for approval under section 303(d) of the Clean Water Act.

A letter submitting this TMDL for approval, dated March 16, 2005, was received by EPA on March 17, 2005. A revised version was submitted by email attachment on May 4, 2005 and May 20, 2005.

Water Quality Standards Attainment

The water body's loading capacity for the applicable pollutant is identified and the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources is described. TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.

The existing nitrate load, based on modeling, is 93 tons/year. The estimated nitrate loading capacity for the lake is 81 tons/year. Including the margin of safety, the targeted reduction in nonpoint source nitrate loading, to the lake, is 37 tons/year or a 40% reduction in the existing load.

Numeric Target(s)

Submittal describes applicable water quality standards, including beneficial uses, applicable numeric and/or narrative criteria. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, site specific if possible, was developed from a narrative criterion and a description of the process used to derive the target is included in the submittal.

The pollutant causing the water quality impairment is nitrate. Designated uses for Cedar Lake are Aquatic Life (Class B(LW)) and Potable Water Source (Class C). Excess nitrate loading has impaired the potable water source, water quality criteria (567 IAC 61.3(3)) and hindered the designated uses. The target of this TMDL is an in-lake nitrate concentration of less than 10.0 mg/L NO3-N.

Numeric Target(s) and Pollutant(s) of concern

An explanation and analytical basis for expressing the TMDL through surrogate measures (e.g., parameters such as percent fines and turbidity for sediment impairments, or chlorophyll-a and phosphorus loadings for excess algae) is provided, if applicable. For each identified pollutant, the submittal describes analytical basis for conclusions, allocations and margin of safety that do not exceed the load capacity.

The link for nitrate is direct; the amount of nitrate load to the lake is set such that the Water Quality Standard of less than 10 mg/L will be achieved. The determination of present load is estimated using models.

Source Analysis

Important assumptions made in developing the TMDL, such as assumed distribution of land use in the watershed, population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources, are described. Point, non point and background sources of pollutants of concern are described, including magnitude and location of the sources. Submittal demonstrates all significant sources have been considered.

The source assessment for nitrate quantifies one source, loaded directly from the watershed. From loading function modeling most of the nonpoint source nitrate comes from row crop land use with smaller amounts coming from one concentrated animal feeding operation and from on 1,500,000 - bird egg production/processing facility. Additional sources include septic systems, manure and waste from pets and wildlife, and atmospheric deposition.

Allocation

Submittal identifies appropriate wasteload allocations for point, and load allocations for nonpoint sources. If no point sources are present the wasteload allocation is zero. If no nonpoint sources are present, the load allocation is zero.

The existing nitrate load, based on modeling, is 93 tons/year. The estimated nitrate loading capacity for the lake is 81 tons/year. Including the margin of safety, the targeted reduction in nonpoint source nitrate loading, to the lake, is 37 tons/year or a 40% reduction in the existing load.

WLA Comment

There are no point sources for nitrate in the watershed for Cedar Lake so the WLAs are set to zero.

LA Comment

The nitrate load allocation is set at 56 tons per year. This is equivalent to 40% reduction in the estimated existing non point source loading.

Margin of Safety

Submittal describes explicit and/or implicit margin of safety for each pollutant. If the MOS is implicit, the conservative assumptions in the analysis for the MOS are described. If the MOS is explicit, the loadings set aside for the MOS are identified and a rationale for selecting the value for the MOS is provided.

The nitrate MOS is explicit. The MOS is set at 25 tons per year or a 90 % prediction interval for a 40% reduction of the existing load corresponding with the TMDL MOS.

Seasonal Variation and Critical Conditions

Submittal describes the method for accounting for seasonal variation and critical conditions in the TMDL(s).

The TMDL was developed based on the annual nitrate loading that will result in attainment of the nitrate target throughout the year.

Public Participation

Submittal describes public notice and public comment opportunity, and explains how the public comments were considered in the final TMDL(s).

A public meeting was held on March 25, 2004 in Winterset. An additional public meeting was held February 23, 2005 to present the draft TMDL for public comment. The TMDL was also posted on the IDNR website. Comments received were reviewed and, where appropriate incorporated into the TMDL. Cedar Lake was placed on IDNRs website for public notice on 2/18/05 and was scheduled to come off 03/04/05. EPA later requested public notice to be extended. Cedar Lake was place back on public notice 04/15/05 and scheduled to come off 04/29/05.

Monitoring Plan for TMDL(s) Under Phased Approach

The TMDL identifies the monitoring plan that describes the additional data to be collected to determine if the load reductions required by the TMDL lead to attainment of WQS, and a schedule for considering revisions to the TMDL(s) (where phased approach is used).

The Winterset Municipal Utilities routinely monitors nitrate levels as required for operation of the drinking water facility. At the minimum, one sample per month following a single violation of the MCL of 10mg/L. With two years of no violations, sampling may be reduced to four times per year for concentrations of 5-10 mg/L and once a year for concentrations of less than 5 mg/L. The City of Winterset also monitors nitrate levels at seven designated testing sites throughout the watershed when adequate stream flow is available.

Reasonable assurance

Reasonable assurance only applies when reductions in nonpoint source loading is required to meet the prescribed waste load allocations.

No waste load allocation is included in this TMDL, reasonable assurances do not apply.